

Engagement in Structured Extracurricular Activities: A Preventive Measure for Technology Addiction in Adolescents

Sukhsiddhi D. Pol,¹ Anand Prakash²

1 Amity University Rajasthan, Jaipur-303002, India

2 Adamas University, Kolkata-700126, India

Abstract

Background: Technology has been an integral part of our lives, and it has both positive and negative effects on adolescents. The engagement in structured extracurricular activities can be utilized as a prevention method for technology or internet addiction. This can channel their time and energy in the right direction and empower valuable results for youth. The present study was conducted to compare adolescents engaged in structured and non-structured extracurricular activities in terms of spending time on computers using the internet for education and entertainment.

Methodology: In a cross-sectional research design, the Strength and Difficulty Questionnaire was administered to a total of 124 adolescents (75 males and 49 females) to exclude adolescents with behavioral disturbances. In addition, a semi-structured interview was also used for understanding and analyzing the impacts of structured and unstructured extracurricular activities (in terms of frequency and duration).

Results and Conclusion: Results indicated that academic grades were highest in adolescents involved in structured extra-curricular activities. Internet use and mobile use for social purposes were found to be higher among adolescents involved in structured extra-curricular activities. Thus, active participation in structured extra-curricular activities leads to the holistic development of adolescents, better academic performance, and decreased involvement in technology.

How to Cite: Pol, S. D., & Prakash, A. (2023). Engagement of structured extra-curricular activities: A preventive measure for technology addiction in adolescents. Science Insights Education Frontiers, 16(2):2537-2563.

Keywords: *Adolescence, Technology Use, Structured Extracurricular Activities, Academic Grades*

About the Author: *Sukhsiddhi D. Pol, Assistant Professor in Clinical Psychology, Amity University Rajasthan, Jaipur-303002, India, E-mail: sukhsiddhipol@gmail.com*

Anand Prakash, Professor & Dean, School of Medical Sciences, Adamas University, Barrackpore-Barasat Road, Kolkata-700126, India, E-mail: anandprakash72@gmail.com

Correspondence to: *Anand Prakash at Adamas University of India.*

Conflict of Interests: *None*

© 2023 Insights Publisher. All rights reserved.



Creative Commons NonCommercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<http://www.creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed by the Insights Publisher.

Introduction

THERE are a huge number of teenagers in India. Among the 1.2 billion global adolescents, 243 million of them reside in India (Sivagurunathan et al., 2015; UNICEF report 2011, Davey & Davey, 2014), with the highest prevalence rate of 47.4% for internet addiction in India (Balhara et al., 2018).

Currently, adolescents' going out, playing, having fun, and participating in structured extracurricular activities with respect to learning desirable constructive skills have been superseded by internet and social media use. It is not only affecting their sleep, mental health, and productivity but also badly hampering their overall development (Bener et al., 2019). Using mobile devices, computers, playing videogames, and watching TV is associated with delayed bedtime and shorter total sleep time (Anderson, 2001; Hale & Guan, 2014; Levenson et al., 2016; Punamaki et al., 2007; Twinge et al., 2019). However, listening to music has beneficial effects on sleep and enables people to relax (Yamasato et al., 2020). It is essential for adolescents to listen to music and to participate in music-related activities, as it allows them to be themselves and portray a positive and favorable image to the outside world, and additionally, it also leads to satisfaction of their emotional needs (Campabell, 2007; Mohan & Thomas, 2020; North et al., 2000). According to the reinforcement theory, using different digital applications and the internet is rewarding for most individuals because of the mood-enhancing contents available on digital platforms, e.g., pornographic material, television, social media, and videogames, which create more impact than anything else (Cash et al., 2012). It enables them to engage in violence, substance abuse, and risky sexual behaviors (Rosen et al., 2014). They share all their feelings of love and hate, aggression, and violence (Tripathi, 2017) through the internet. Hence, it is highly essential to channelize their energies in a healthy direction by enabling them to participate in structured extracurricular activities, which will prevent their extensive use of the internet and enhance their academic achievement.

Structured and Unstructured Extracurricular Activity

Structured extracurricular activities are well-planned optional services that include excursions, contests, athletics, scouting, music, folklore, article writing and editing for newspapers, displays, theater, fashion shows, exhibitions, chess, tennis, basketball, fairs, creative drama, etc., which are designed and conducted in and out of school as strategic instruments to bring about positive changes in behavior (Mahoney et al., 2004; Vandell et al., 2015). Stud-

ies have suggested the negative impacts of lacking structure in extracurricular activities (Cosden et al., 2004; Fraser-Thomas et al., 2005; Mahoney et al., 2004).

Unstructured activities involve no supervision of adults, and adolescents are likely to spend their time pertaining to their interests, which could involve chatting over a phone or glancing through the internet, watching pornography, or going out and playing (Turkson et al., 2021).

Informal, unstructured extracurricular activities, if not monitored by an adult or by the school, can lead to behavioral disturbances in adolescents and influence them to be part of unwanted societal norms (Fredricks, 2006).

If the undesirable social norms remain undefined, the impact of involvement in unsupervised and disorganized behaviors can be adverse and contribute to undesirable psychosocial outcomes (Gliman et al., 2004; Mahony & Sattin, 2000). It has been discovered that participation in structured activities is strongly linked with academic performance and desirable behavior (Darling et al., 2005).

Sports and Music-Related Extracurricular Activities

Sports activities and music-instrumental activities are essential for a healthy lifestyle, as they enhance physical fitness and inoculate team spirit (MacPhail et al., 2004), and involvement in music-related activities leads to better family relations and peer cohesion (Boer & Abubakar, 2014).

Both music- and sports-related activities give adolescents an opportunity to make friendships and to enjoy and commit to the activity (Schaefer et al., 2011; Knifsend & Juvonen, 2017).

Participating in both extracurricular athletic activities and involvement in music predicts psychological benefits and is associated with positive emotional well-being in adolescents (Boer & Abubakar, 2014; Fredricks & Eccles, 2008). Furthermore, participating in extracurriculars is an important predictor of a broad set of outcomes, like psychological adjustment and educational and occupational outcomes in adolescents (Beal & Crockett, 2010).

Internet Use, Extracurricular Activities, and Academic Grades

Teenagers' have the potential to develop a social media addiction on a personal level as it involves concerns about current issues in virtual life, which at first seems relatively simple, inexpensive, and safe. However, it gradually increases emotional aloofness, lessening communication in the real world. It also obstructs the development of personality by destroying its integrity, stability, and ability to form new social experiences. For most pupils, it is cru-

cial to prevent internet addiction, develop a realistic perspective of life, and understand where the "I" belongs (Neverkovich et al., 2018). Families with single or divorced parents, conflict between the parents, and parent-child conflict are more likely to experience addiction. Enabling them to spend less time with family members, which is linked with children's internet use (Shek et al., 2019).

Adolescents using excessive internet use have emotional problems, poor academic performance, and are very less likely to engage in extracurricular activities (Oberle et al., 2020; Sampasa-Kanyinga et al., 2019; Tsitsika et al., 2011), leading to social isolation, depression (Alimoradi et al., 2019; Esen et al., 2014; Gross, 2004; Saikia et al., 2019; Stankovi et al., 2021), and suicidal attempts for adolescents (Schen et al., 2020). On the other hand, adolescents playing videogames are less likely to spend time reading, doing homework, and spending time with their family and friends (Cummings & Vandewater, 2007).

Altogether, involving adolescents in structured extracurricular activities beneficially brings positive results (Durlak & Weisberg, 2010; Denault & Poulin, 2016; Thomson et al., 2013). Consistent involvement in extracurricular activities builds and enhances a superb connection with the way adolescents perceive themselves, which leads to better academic achievement (Broh, 2002; Zaccoletti et al., 2020), future developmental success (Balyer & Gunduz, 2012; Beal & Crockett, 2010; Busseri et al., 2006; Gardner et al., 2008; Larson et al., 2006), and life-wide learning (Thompson et al., 2013).

Given the benefits of structured sports and music activities, parents and teachers can encourage teens to pursue these activities. Therefore, this study aims to make parents and teachers aware of the benefits associated with sports and music-related structured extracurricular activities. Whether there are any differences noticed in their digital media use can be utilized as a preventive measure to avoid excessive usage of technology.

Materials and Methods

Study Design and Setting

The study was community-based and cross-sectional research conducted in Bengaluru, India. A convenient sampling method was used. Eventually, multiple group comparisons were conducted.

Participants

A total of 124 adolescents (75 males and 49 females; 47 in the sports group, 42 in the music group, and 35 in the control group) ranging in age from 10 to 16 years, English-speaking, and seeking formal school education were fi-

nally taken into the research. Initially, the Strength and Difficulty Questionnaire (SDQ) (Goodman, 1997) was given to the adolescents for screening to identify whether they had emotional and behavioral concerns. The students with scores above 21 (cutoff score) were excluded from the study.

There were two broad groups consisting of adolescents receiving formal education for their respective structured extra-curricular activities: The sports group included 47 adolescents, the music group comprised 42 adolescents, and the control group encompassed 35 adolescents with no involvement in any structured extracurricular activity. Altogether, 124 adolescents participated in the study. Written and informed consent was obtained from parents or teachers.

Procedures

Coaching classes for sports and music activities in Bengaluru were approached for the study. A sociodemographic sheet, a semi-structural interview schedule for TV videogames, mobile computers, and the internet (TVMCI), an extracurricular data sheet, and a strengths and difficulty questionnaire by Goodman (1997) were given for data collection.

Ethical Considerations

Subjects were assured that they could decline to participate in research at any given point in time. The confidentiality of the data was maintained, and their concerns or questions related to research, or their mental health were clarified.

Tools for Data Collection

Socio-Demographic Data Sheet

The socio-demographic sheet was given to the adolescents, which included details like name, age, education, address, and percentage of marks.

Semi-structural Interview Schedule: Television, Videogames, Mobile Computers, and Internet Use

The semi-structural interview schedule was basically a time use survey that included questions regarding usage of watching TV, playing videogames, mobile usage both socially and educationally, using computers at home and at school for educational purposes, and usage of the internet socially and educationally measured in terms of frequency in a week's time, like how much time usage of either of these equipments or use of the internet is present, whether adolescents are using it daily, for how much time they

use, measured in terms of minutes, and also since how many months, these aspects were covered.

Extracurricular Activity Checklist (ECA)

It included questions related to the number of hours spent in the structured extracurricular activity, the duration of formal training in months, the frequency of going to the respective formal training class (number of times in a week), practice hours spent both individually and along with the trainer (number of hours), and the duration of formal training received in months (since when).

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)

This questionnaire is used to identify behavioral and emotional problems in children. This test consists of 25 statements, which are divided into five constructs: conduct problems, hyperactivity or inattention, emotional problems, peer problems, and pro-social behavior. There are different versions of this questionnaire for parents, teachers, and children and adolescents. A higher SDQ score is associated with greater behavioral disturbances in children. Prosocial subscale scoring is excluded from the total score. Reliability was assessed using an internal consistency mean alpha of 0.73 and a retest stability mean of 0.62. Validity was examined by investigating the correlation of the SDQ. Crossing over scores above the 90th percentile indicates diagnosable psychopathology in children and adolescents (Goodman et al., 2004). It has both parent and teacher versions, which have strong psychometric properties. (Stone et al., 2010)

Statistical Analysis

IBM SPSS software was used for analysis of the data. The sociodemographic data were distributed into 3 sub-groups, i.e., sports group, music-instruments group, and control group.

For subjective ratings of liking, achievements, amount spent, and semi-structural interview schedules for TVMCI variables, descriptive statistics such as mean and standard deviation (SD) were calculated. To explore the group differences, a One-Way ANOVA was done. To determine the significance level, a post-hoc Tukey test and Honestly Significant Difference (HSD) were conducted.

Results

There was a significant difference found in the age and education of the sports, music-instrumental, and control groups. It was seen that academic marks were found to be higher in both the sports group (mean = 86.04, SD = 8.01) and the music-instrumental group (mean = 84.12, SD = 11.35), with the lowest being in the control group (mean = 76.06, SD = 12.56) (**Table 1**).

Post hoc analysis of sociodemographic variables suggests that age, education, and academic marks were significant at the 0.05 level (**Table 2**).

Significant difference found in all three respective groups, frequency of practice was found to be (mean = 3.70, SD = 1.805), number of hours spent (mean = 3.40, SD = 1.523), amount spent (mean = 1471.28, SD = 585.58) and achievements (mean = 0.55, SD = 0.503) was found to be more in the sports group than the other two groups (**Table 3**). On the other hand, the music group had the highest subjective rating of liking (mean = 9.60, SD = 1.57) was followed by the sports group and the control group (**Table 4**).

Tables 5 and 6 show that all three subgroups differed in SDQ scores. Sports group and music group SDQ total scores were highest in comparison with the control group and pro-social behavior. Subscale scores were greater in both the music-instrumental group (mean = 7.43, SD = 2.25) and the sports group (mean = 7.32, SD = 2.24) than in the control group (mean = 6.57, SD = 2.48).

No. of times (the frequency of using the internet for social use per week) (mean = 1.03 SD = 2.269), Internet use in minutes per week (mean = 42.86, SD = 90.377) and Internet Use for Months together were found to be higher in the control group than sports and the control group (**Tables 7-9**).

Mobile use for social purposes in the sports group had higher scores in No times (frequency in week) (mean = 2.79, SD = 3.127), Mobile social (since how long) Months (mean = 9.28, SD = 16.880). However, the control group had the highest mobile use in terms of duration in minutes (mean = 36.86, SD = 83.235) (**Tables 10-14**).

The control group had the highest frequency (mean = 6.86, SD = 0.845) since the months (mean = 167.54, SD = 99.957) in comparison with all the rest of the group (**Tables 15-17**).

Discussion

Since it was a time-bound study, the number of participants was variable in each group. In this study, the duration in minutes for mobile phone use (social purpose) was found to be greater in the control group than in adolescents involved in structured extracurricular activities (**Tables 18-21**). In fact, compulsive usage of technology has become a way of life for everyone. Both adolescents and parents use it for different purposes when looking at each other. As per the social learning theory given by Bandura, modeling (vicarious learning) has taken place (Vala & Blekley, 2015). The technology has

Table 1. Demographic Characteristics of the Sample.

		Mean	Standard Deviation	F	Sig.
Age	Sports Group	12.40	2.007	4.665	0.11
	Music & Instruments Group	12.17	1.766		
	Control Group	13.54	2.501		
	Total	12.65	2.146		
Education	Sports Group	6.98	2.364	2.638	0.076
	Music & Instruments Group	6.64	2.046		
	Control Group	7.86	2.702		
	Total	7.11	2.397		
Marks	Sports Group	86.04	8.011	9.572	0.00
	Music & Instruments Group	84.12	11.353		
	Control Group	76.06	12.563		
	Total	82.57	11.317		

Table 2: Multiple comparisons Post HOC Tukey Test on Sociodemographic Variables.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.
Age	Sports Group	Music & Instruments Group	0.238	0.853
		Control Group	-1.139 [*]	0.042
	Music & Instruments Group	Sports Group	-0.238	0.853
		Control Group	-1.376 [*]	0.013
	Control Group	Sports Group	1.139 [*]	0.042
		Music & Instruments Group	1.376 [*]	0.013
Education	Sports Group	Music & Instruments Group	0.336	0.782
		Control Group	-0.878	0.224
	Music & Instruments Group	Sports Group	-0.336	0.782
		Control Group	-1.214	0.068
	Control Group	Sports Group	0.878	0.224
		Music & Instruments Group	1.214	0.068
Marks	Sports Group	Music & Instruments Group	1.924	0.670
		Control Group	9.985 [*]	0.000
	Music & Instruments Group	Sports Group	-1.924	0.670
		Control Group	8.062 [*]	0.003
	Control Group	Sports Group	-9.985 [*]	0.000
		Music & Instruments Group	-8.062 [*]	0.003

Table 3. Mean, Standard Deviation and ANOVA on ECA.

		Mean	Std. Deviation	F	Sig.
Frequency of Practice	Sports Group	3.70	1.805	7.018	0.001
	Music & Instruments Group	2.29	1.019		
	Control Group	3.34	2.496		
	Total	3.12	1.915		
No. of hours	Sports Group	3.40	1.527	13.986	0.000
	Music & Instruments Group	2.81	1.890		
	Control Group	1.60	0.976		
	Total	2.69	1.693		
Since when?	Sports Group	19.26	20.655	2.321	0.102
	Music & Instruments Group	19.55	22.399		
	Control Group	10.91	14.269		
	Total	17.00	19.944		
Amount	Sports Group	1,471.28	585.583	78.556	0.000
	Music & Instruments Group	1109.81	684.136		
	Control Group	0.00	0.000		
	Total	933.56	808.297		
Subjective Rating of Liking	Sports Group	9.49	1.586	14.072	0.000
	Music & Instruments Group	9.60	1.578		
	Control Group	6.57	4.648		
	Total	8.70	3.089		
Achievements in ECA	Sports Group	0.55	0.503	18.040	0.000
	Music & Instruments Group	0.31	0.468		
	Control Group	0.00	0.000		
	Total	0.31	0.466		

immense addictive potential (Sherma et al., 2017). Even non-users are motivated to use it (Bremer, 2005; Selwyn et al., 2005; Whiting & Janasz, 2004). It is found that among adolescents in India, the use of devices for Internet surfing is 67% and WhatsApp use is 93.6%. Mobile phones in this population were discovered to be chatting and texting at 87.5%. The use of mobiles after coming back from school was 57.7%; 34.6% of respondents indicated that they check their mobiles as soon as they get up from bed, and 30.9% said that they use their mobile phones for more than 4 hours (Venkataraghavan, 2015).

Adolescents involved in music-related activities prefer to spend time practicing music instead of indoor activities like playing computer games. Though outdoor activities, visiting friends, or playing their favorite sport were substantially preferred, along with participation in musical activities (North et al., 2000).

Table 4. Multiple Comparison Post HOC Tukey Test on ECA Checklist.

Dependent Variable		(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.
Frequency of Practice	Tukey HSD	Sports Group	Music & Instruments Group	1.416 [†]	0.001
			Control Group	0.359	0.654
		Music & Instruments Group	Sports Group	-1.416 [†]	0.001
			Control Group	-1.057 [†]	0.034
		Control Group	Sports Group	-0.359	0.654
			Music & Instruments Group	1.057 [†]	0.034
	LSD	Sports Group	Music & Instruments Group	1.416 [†]	0.000
			Control Group	0.359	0.380
		Music & Instruments Group	Sports Group	-1.416 [†]	0.000
			Control Group	-1.057 [†]	0.013
		Control Group	Sports Group	-0.359	0.380
			Music & Instruments Group	1.057 [†]	0.013
No. of hours	Tukey HSD	Sports Group	Music & Instruments Group	0.595	0.167
			Control Group	1.804 [†]	0.000
		Music & Instruments Group	Sports Group	-0.595	0.167
			Control Group	1.210 [†]	0.002
		Control Group	Sports Group	-1.804 [†]	0.000
			Music & Instruments Group	-1.210 [†]	0.002
	LSD	Sports Group	Music & Instruments Group	0.595	0.071
			Control Group	1.804 [†]	0.000
		Music & Instruments Group	Sports Group	-0.595	0.071
			Control Group	1.210 [†]	0.001
		Control Group	Sports Group	-1.804 [†]	0.000
			Music & Instruments Group	-1.210 [†]	0.001
Since when?	Tukey HSD	Sports Group	Music & Instruments Group	-0.292	0.997
			Control Group	8.341	0.145
		Music & Instruments Group	Sports Group	0.292	0.997
			Control Group	8.633	0.140
		Control Group	Sports Group	-8.341	0.145
			Music & Instruments Group	-8.633	0.140
	LSD	Sports Group	Music & Instruments Group	-0.292	0.944
			Control Group	8.341	0.061
		Music & Instruments Group	Sports Group	0.292	0.944
			Control Group	8.633	0.058
		Control Group	Sports Group	-8.341	0.061
			Music & Instruments Group	-8.633	0.058
Amount	Tukey HSD	Sports Group	Music & Instruments Group	361.467 [†]	0.005
			Control Group	1,471.277 [†]	0.000
		Music & Instruments Group	Sports Group	-361.467 [†]	0.005
			Control Group	1,109.810 [†]	0.000
		Control Group	Sports Group	-1,471.277 [†]	0.000
			Music & Instruments Group	-1,109.810 [†]	0.000
	LSD	Sports Group	Music & Instruments Group	361.467 [†]	0.002
			Control Group	1,471.277 [†]	0.000
		Music & Instruments Group	Sports Group	-361.467 [†]	0.002
			Control Group	1,109.810 [†]	0.000
		Control Group	Sports Group	-1,471.277 [†]	0.000
			Music & Instruments Group	-1,109.810 [†]	0.000
Subjective rating	Tukey HSD	Sports Group	Music & Instruments Group	-0.106	0.983
			Control Group	2.918 [†]	0.000
		Music & Instruments Group	Sports Group	0.106	0.983
			Control Group	3.024 [†]	0.000
		Control Group	Sports Group	-2.918 [†]	0.000
			Music & Instruments Group	-3.024 [†]	0.000
LSD	Sports Group	Music & Instruments Group	-0.106	0.859	
		Control Group	2.918 [†]	0.000	
		Music & Instruments Group	0.106	0.859	

		Group	Control Group	3.024 ^a	0.000
Achievement	Tukey HSD	Control Group	Sports Group	-2.918 ^a	0.000
			Music & Instruments Group	-3.024 ^a	0.000
		Sports Group	Music & Instruments Group	0.244 ^a	0.017
			Control Group	0.553 ^a	0.000
		Music & Instruments Group	Sports Group	-0.244 ^a	0.017
			Control Group	0.310 ^a	0.004
	LSD	Control Group	Sports Group	-0.553 ^a	0.000
			Music & Instruments Group	-0.310 ^a	0.004
		Sports Group	Music & Instruments Group	0.244 ^a	0.006
			Control Group	0.553 ^a	0.000
		Music & Instruments Group	Sports Group	-0.244 ^a	0.006
			Control Group	0.310 ^a	0.001
	Control Group	Sports Group	-0.553 ^a	0.000	
		Music & Instruments Group	-0.310 ^a	0.001	

Table 5. One-Way ANOVA on Strength and Difficulty Questionnaire (SDQ).

		Mean	Std. Deviation	F	Sig.
Emotional	Sports Group	2.36	1.762	1.073	0.345
	Music & Instruments Group	1.86	1.676		
	Control Group	2.66	3.694		
	Total	2.27	2.444		
Conduct	Sports Group	2.34	1.809	0.898	0.410
	Music & Instruments Group	1.88	1.656		
	Control Group	2.26	1.559		
	Total	2.16	1.689		
Hyper Activity	Sports Group	2.87	1.884	0.132	0.876
	Music & Instruments Group	2.76	2.093		
	Control Group	2.66	1.589		
	Total	2.77	1.869		
Peer Problems	Sports Group	2.04	2.177	0.385	0.681
	Music & Instruments Group	2.26	2.073		
	Control Group	2.43	1.614		
	Total	2.23	1.987		
Prosocial Behavior	Sports Group	7.32	2.247	1.516	0.224
	Music & Instruments Group	7.43	2.254		
	Control Group	6.57	2.489		
	Total	7.15	2.329		
Total	Sports Group	9.49	5.254	0.703	0.497
	Music & Instruments Group	8.55	5.283		
	Control Group	8.29	3.923		
	Total	8.83	4.915		

Table 6. Post Hoc Tests Multiple comparisons on Strength and Difficulty Questionnaire (SDQ).

Dependent Variable		(I) Subgroups	(J) Subgroups	Mean Difference (I-J)	Sig.
Emotional	Tukey HSD	Sports Group	Music & Instruments Group	0.505	0.595
			Control Group	-0.295	0.851
		Music & Instruments Group	Sports Group	-0.505	0.595
			Control Group	-0.800	0.328
		Control Group	Sports Group	0.295	0.851
			Music & Instruments Group	0.800	0.328
	LSD	Sports Group	Music & Instruments Group	0.505	0.333
			Control Group	-0.295	0.589
		Music & Instruments Group	Sports Group	-0.505	0.333
			Control Group	-0.800	0.155
		Control Group	Sports Group	0.295	0.589
			Music & Instruments Group	0.800	0.155
Conduct	Tukey HSD	Sports Group	Music & Instruments Group	0.459	0.409
			Control Group	0.083	0.974
		Music & Instruments Group	Sports Group	-0.459	0.409
			Control Group	-0.376	0.596
		Control Group	Sports Group	-0.083	0.974
			Music & Instruments Group	0.376	0.596
	LSD	Sports Group	Music & Instruments Group	0.459	0.203
			Control Group	0.083	0.826
		Music & Instruments Group	Sports Group	-0.459	0.203
			Control Group	-0.376	0.333
		Control Group	Sports Group	-0.083	0.826
			Music & Instruments Group	0.376	0.333
Hyper Activity	Tukey HSD	Sports Group	Music & Instruments Group	0.110	0.959
			Control Group	0.215	0.866
		Music & Instruments Group	Sports Group	-0.110	0.959
			Control Group	0.105	0.968
		Control Group	Sports Group	-0.215	0.866
			Music & Instruments Group	-0.105	0.968
	LSD	Sports Group	Music & Instruments Group	0.110	0.783
			Control Group	0.215	0.610
		Music & Instruments Group	Sports Group	-0.110	0.783
			Control Group	0.105	0.808
		Control Group	Sports Group	-0.215	0.610
			Music & Instruments Group	-0.105	0.808
Peer_Problems	Tukey HSD	Sports Group	Music & Instruments Group	-0.219	0.863
			Control Group	-0.386	0.663
		Music & Instruments Group	Sports Group	0.219	0.863
			Control Group	-0.167	0.929
		Control Group	Sports Group	0.386	0.663
			Music & Instruments Group	0.167	0.929
	LSD	Sports Group	Music & Instruments Group	-0.219	0.606
			Control Group	-0.386	0.388
		Music & Instruments Group	Sports Group	0.219	0.606
			Control Group	-0.167	0.716
		Control Group	Sports Group	0.386	0.388
			Music & Instruments Group	0.167	0.716
Prosocial Behavior	Tukey HSD	Sports Group	Music & Instruments Group	-0.109	0.973
			Control Group	0.748	0.322
		Music & Instruments Group	Sports Group	0.109	0.973
			Control Group	0.857	0.243
		Control Group	Sports Group	-0.748	0.322
			Music & Instruments Group	-0.857	0.243
	LSD	Sports Group	Music & Instruments Group	-0.109	0.825
			Control Group	0.748	0.151
		Music & Instruments Group	Sports Group	0.109	0.825
			Control Group	0.857	0.109

		Control Group	Sports Group	-0.748	0.151	
Total	Tukey HSD		Music & Instruments Group	-0.857	0.109	
			Sports Group	Music & Instruments Group	0.942	0.641
				Control Group	1.204	0.520
			Music & Instruments Group	Sports Group	-0.942	0.641
				Control Group	0.262	0.971
			Control Group	Sports Group	-1.204	0.520
	LSD			Music & Instruments Group	-0.262	0.971
			Sports Group	Music & Instruments Group	0.942	0.370
				Control Group	1.204	0.276
			Music & Instruments Group	Sports Group	-0.942	0.370
				Control Group	0.262	0.817
			Control Group	Sports Group	-1.204	0.276
			Music & Instruments Group	-0.262	0.817	

Table 7. One-Way ANOVA on Extracurricular Activity Checklist.

		Mean	SD	F	Sig.
Frequency of Practice	Sports Group	3.70	1.805	7.018	0.001
	Music & Instruments Group	2.29	1.019		
	Control Group	3.34	2.496		
	Total	3.12	1.915		
No. of hours	Sports Group	3.40	1.527	13.986	0.000
	Music & Instruments Group	2.81	1.890		
	Control Group	1.60	0.976		
	Total	2.69	1.693		
Since when?	Sports Group	19.26	20.655	2.321	0.102
	Music & Instruments Group	19.55	22.399		
	Control Group	10.91	14.269		
	Total	17.00	19.944		
Amount	Sports Group	1,471.28	585.583	78.556	0.000
	Music & Instruments Group	1,109.81	684.136		
	Control Group	0.00	0.000		
	Total	933.56	808.297		
Subjective Rating of Liking	Sports Group	9.49	1.586	14.072	0.000
	Music & Instruments Group	9.60	1.578		
	Control Group	6.57	4.648		
	Total	8.70	3.089		
Achievements in ECA	Sports Group	0.55	0.503	18.040	0.000
	Music & Instruments Group	0.31	0.468		
	Control Group	0.00	0.000		
	Total	0.31	0.466		

Table 8. Multiple comparisons Post HOC Tukey Test on ECA Checklist.

Dependent Variable		(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.
Frequency of Practice	Tukey HSD	Sports Group	Music & Instruments Group	1.416 [*]	0.001
			Control Group	0.359	0.654
		Music & Instruments Group	Sports Group	-1.416 [*]	0.001
			Control Group	-1.057 [*]	0.034
		Control Group	Sports Group	-0.359	0.654
			Music & Instruments Group	1.057 [*]	0.034
	LSD	Sports Group	Music & Instruments Group	1.416 [*]	0.000
			Control Group	0.359	0.380
		Music & Instruments Group	Sports Group	-1.416 [*]	0.000
			Control Group	-1.057 [*]	0.013
		Control Group	Sports Group	-0.359	0.380
			Music & Instruments Group	1.057 [*]	0.013
No. of hours	Tukey HSD	Sports Group	Music & Instruments Group	0.595	0.167
			Control Group	1.804 [*]	0.000
		Music & Instruments Group	Sports Group	-0.595	0.167
			Control Group	1.210 [*]	0.002
		Control Group	Sports Group	-1.804 [*]	0.000
			Music & Instruments Group	-1.210 [*]	0.002
	LSD	Sports Group	Music & Instruments Group	0.595	0.071
			Control Group	1.804 [*]	0.000
		Music & Instruments Group	Sports Group	-0.595	0.071
			Control Group	1.210 [*]	0.001
		Control Group	Sports Group	-1.804 [*]	0.000
			Music & Instruments Group	-1.210 [*]	0.001
Since when?	Tukey HSD	Sports Group	Music & Instruments Group	-0.292	0.997
			Control Group	8.341	0.145
		Music & Instruments Group	Sports Group	0.292	0.997
			Control Group	8.633	0.140
		Control Group	Sports Group	-8.341	0.145
			Music & Instruments Group	-8.633	0.140
	LSD	Sports Group	Music & Instruments Group	-0.292	0.944
			Control Group	8.341	0.061
		Music & Instruments Group	Sports Group	0.292	0.944
			Control Group	8.633	0.058
		Control Group	Sports Group	-8.341	0.061
			Music & Instruments Group	-8.633	0.058
Amount	Tukey HSD	Sports Group	Music & Instruments Group	361.467 [*]	0.005
			Control Group	1,471.277 [*]	0.000
		Music & Instruments Group	Sports Group	-361.467 [*]	0.005
			Control Group	1,109.810 [*]	0.000
		Control Group	Sports Group	-1,471.277 [*]	0.000
			Music & Instruments Group	-1,109.810 [*]	0.000
	LSD	Sports Group	Music & Instruments Group	361.467 [*]	0.002
			Control Group	1,471.277 [*]	0.000
		Music & Instruments Group	Sports Group	-361.467 [*]	0.002
			Control Group	1,109.810 [*]	0.000
		Control Group	Sports Group	-1,471.277 [*]	0.000
			Music & Instruments Group	-1,109.810 [*]	0.000
Subjective rating	Tukey HSD	Sports Group	Music & Instruments Group	-0.106	0.983
			Control Group	2.918 [*]	0.000
		Music & Instruments Group	Sports Group	0.106	0.983
			Control Group	3.024 [*]	0.000
		Control Group	Sports Group	-2.918 [*]	0.000
			Music & Instruments Group	-3.024 [*]	0.000
	LSD	Sports Group	Music & Instruments Group	-0.106	0.859
			Control Group	2.918 [*]	0.000
		Music & Instruments Group	Sports Group	0.106	0.859

		Group	Control Group	3.024 ¹	0.000
Achievement	Tukey HSD	Control Group	Sports Group	-2.918 ¹	0.000
			Music & Instruments Group	-3.024 ¹	0.000
		Sports Group	Music & Instruments Group	0.244 ¹	0.017
			Control Group	0.553 ³	0.000
		Music & Instruments Group	Sports Group	-0.244 ¹	0.017
			Control Group	0.310 ¹	0.004
	LSD	Control Group	Sports Group	-0.553 ³	0.000
			Music & Instruments Group	-0.310 ¹	0.004
		Sports Group	Music & Instruments Group	0.244 ¹	0.006
			Control Group	0.553 ³	0.000
		Music & Instruments Group	Sports Group	-0.244 ¹	0.006
			Control Group	0.310 ¹	0.001
	Control Group	Sports Group	-0.553 ³	0.000	
		Music & Instruments Group	-0.310 ¹	0.001	

Table 9. One-Way ANOVA on Internet Use for Social and Recreation Purpose.

		Mean	Standard Deviation	F	Sig.
No times	Sports Group	0.91	2.073	0.880	0.417
	Music Group	0.48	1.550		
	Control Group	1.03	2.269		
	Total	0.80	1.971		
Internet Use Social Minutes	Sports Group	13.28	32.199	4.485	0.13
	Music Group	8.57	24.151		
	Control Group	42.86	90.377		
	Total	20.03	55.232		
Internet Use Social Months	Sports Group	8.77	25.083	0.557	0.575
	Music Group	4.62	13.489		
	Control Group	6.17	13.455		
	Total	6.63	18.686		

Table 10. Multiple Comparisons Post HOC Tukey Test on Internet Use for Social and Recreation.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.	
No times (Frequency in week)	Sports Group	Music Group	0.439	0.549	
		Control Group	-0.114	0.964	
	Music Group	Sports Group	-0.439	0.549	
		Control Group	-0.552	0.442	
	Control Group	Sports Group	0.114	0.964	
		Music Group	0.552	0.442	
	Internet Use Social in minutes	Sports Group	Music Group	4.705	0.911
			Control Group	-29.581 ¹	0.040
Music Group		Sports Group	-4.705	0.911	
		Control Group	-34.286 ¹	0.017	
Control Group		Sports Group	29.581 ¹	0.040	
		Music Group	34.286 ¹	0.017	
Internet Use Social in months		Sports Group	Music Group	4.147	0.552
			Control Group	2.595	0.810
	Music Group	Sports Group	-4.147	0.552	
		Control Group	-1.552	0.930	
	Control Group	Sports Group	-2.595	0.810	
		Music Group	1.552	0.930	

Table 11. One-Way ANOVA on Internet Use for Educational Purposes at School.

		Mean	Std. Deviation	F	Sig.
No times (Frequency in week)	Sports Group	0.30	1.140	0.841	0.434
	Music Group	0.24	0.759		
	Control Group	0.06	0.338		
	Total	0.21	0.848		
Internet Use For Education School Minutes	Sports Group	5.64	16.766	0.564	0.570
	Music Group	8.57	26.279		
	Control Group	3.43	20.284		
	Total	6.01	21.290		
Internet Use For Education School In months	Sports Group	1.91	7.089	1.971	0.144
	Music Group	6.00	18.410		
	Control Group	1.03	6.085		
	Total	3.05	12.109		

Table 12. Multiple Comparisons Post HOC Tukey Test on Internet Use for Educational Purposes at School.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.	
No times (Frequency in week)	Sports Group	Music Group	0.060	0.941	
		Control Group	0.241	0.415	
	Music Group	Sports Group	-0.060	0.941	
		Control Group	0.181	0.622	
	Control Group	Sports Group	-0.241	0.415	
		Music Group	-0.181	0.622	
	Internet Use For Education School Minutes	Sports Group	Music Group	-2.933	0.795
			Control Group	2.210	0.889
Music Group		Sports Group	2.933	0.795	
		Control Group	5.143	0.546	
Control Group		Sports Group	-2.210	0.889	
		Music Group	-5.143	0.546	
Internet Use For Education School In months	Sports Group	Music Group	-4.085	0.249	
		Control Group	0.886	0.942	
	Music Group	Sports Group	4.085	0.249	
		Control Group	4.971	0.171	
	Control Group	Sports Group	-0.886	0.942	
		Music Group	-4.971	0.171	

Table 13. One-way ANOVA on Internet Use for Educational Purpose at Home.

		Mean	Std. Deviation	F	Sig.
No times (Frequency in week)	Sports Group	1.02	1.812	2.658	0.074
	Music Group	0.36	0.692		
	Control Group	1.14	2.171		
	Total	0.83	1.676		
Internet Use at Home Minutes	Sports Group	33.51	92.059	1.103	0.335
	Music Group	13.21	28.151		
	Control Group	23.71	48.147		
	Total	23.87	64.411		
Internet Use at Home Months	Sports Group	10.72	20.970	1.202	0.304
	Music Group	5.48	12.186		
	Control Group	7.20	13.081		
	Total	7.95	16.323		

Table 14. Multiple Comparisons Post HOC Tukey Test on Internet Use for Educational Purposes at Home.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.	
No times (Frequency in week)	Sports Group	Music Group	0.664	0.146	
		Control Group	-0.122	0.942	
		Sports Group	-0.664	0.146	
	Music Group	Control Group	-0.786	0.099	
		Sports Group	0.122	0.942	
		Control Group	0.786	0.099	
	Internet Use at Home Minutes	Sports Group	Music Group	20.296	0.302
			Control Group	9.796	0.775
			Sports Group	-20.296	0.302
Music Group		Control Group	-10.500	0.756	
		Sports Group	-9.796	0.775	
		Music Group	10.500	0.756	
Internet Use at Home Months		Sports Group	Music Group	5.247	0.287
			Control Group	3.523	0.598
		Music Group	Sports Group	-5.247	0.287
	Control Group		-1.724	0.889	
	Control Group	Sports Group	-3.523	0.598	
		Music Group	1.724	0.889	

Table 15. One-Way ANOVA on Computer Use for Educational Purposes at School.

		Mean	Std. Deviation	F	Sig.
No times (Frequency in week)	Sports Group	1.15	0.932	1.751	0.178
	Music Group	1.52	1.435		
	Control Group	1.06	1.162		
	Total	1.25	1.194		
Computer Use Education at School Minutes	Sports Group	44.47	41.208	0.361	0.698
	Music Group	50.48	52.809		
	Control Group	54.29	65.722		
	Total	49.27	52.679		
Computer Use Education at School Months	Sports Group	26.30	25.442	3.183	0.045
	Music Group	29.71	28.574		
	Control Group	15.77	18.810		
	Total	24.48	25.382		

Table 16. Post Hoc Tukey Test on Computer Use for Educational Purpose at School.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.	
No times	Sports Group	Music Group	-0.375	0.300	
		Control Group	0.092	0.936	
		Sports Group	0.375	0.300	
	Music Group	Control Group	0.467	0.202	
		Sports Group	-0.092	0.936	
		Music Group	-0.467	0.202	
	Computer Use Education at School Minutes	Sports Group	Music Group	-6.008	0.855
			Control Group	-9.818	0.685
		Music Group	Sports Group	6.008	0.855
Control Group			-3.810	0.947	
Control Group		Sports Group	9.818	0.685	
		Music Group	3.810	0.947	
COM EDU SCH months	Sports Group	Music Group	-3.416	0.796	
		Control Group	10.526	0.146	
	Music Group	Sports Group	3.416	0.796	
		Control Group	13.943	0.042	
	Control Group	Sports Group	-10.526	0.146	
		Music Group	-13.943	0.042	

Table 17. One-Way ANOVA on Computer Use for Educational Purpose at Home.

		Mean	Std. Deviation	F.	Sig.
No times (Frequency in week)	Sports Group	1.55	1.863	3.307	0.040
	Music Group	0.86	1.775		
	Control Group	0.66	1.282		
	Total	1.06	1.719		
Computer Use Education Minutes	Sports Group	49.47	74.588	4.723	0.011
	Music Group	14.88	26.880		
	Control Group	23.14	50.455		
	Total	30.32	57.108		
Computer Use Education (Since how long) Months	Sports Group	17.62	25.969	1.661	0.194
	Music Group	14.31	26.917		
	Control Group	7.89	16.449		
	Total	13.75	24.168		

Table 18. Multiple Comparisons Post HOC Tukey Test on Computer Use for Educational Purposes.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.
No times (Frequency in week)	Sports Group	Music Group	0.696	0.131
		Control Group	0.896	0.049
		Sports Group	-0.696	0.131
	Music Group	Control Group	0.200	0.863
		Sports Group	-0.896	0.049
	Control Group	Music Group	-0.200	0.863
Computer Use Education Minutes	Sports Group	Music Group	34.587	0.011
		Control Group	26.325	0.089
		Sports Group	-34.587	0.011
	Music Group	Control Group	-8.262	0.792
		Sports Group	-26.325	0.089
	Control Group	Music Group	8.262	0.792
Computer Use Education (Since how long) Months	Sports Group	Music Group	3.307	0.794
		Control Group	9.731	0.170
		Sports Group	-3.307	0.794
	Music Group	Control Group	6.424	0.475
		Sports Group	-9.731	0.170
	Control Group	Music Group	-6.424	0.475

Table 19. One-Way ANOVA on Mobile use for Educational Purpose.

		Mean	Std. Deviation	F	Sig.
No times (Frequency in week)	Sports Group	1.15	2.386	2.654	0.74
	Music group	0.21	1.094		
	Control Group	0.63	1.987		
	Total	0.69	1.944		
Mobile use Education Minutes	Sports Group	11.28	29.460	0.441	0.644
	Music group	5.36	28.076		
	Control Group	9.43	33.161		
	Total	8.75	29.964		
Mobile use Education (Since how long) Months	Sports Group	8.57	20.573	3.046	0.51
	Music group	2.29	8.480		
	Control Group	2.06	6.164		
	Total	4.60	14.229		

Table 20. Multiple Comparisons Post HOC Tukey Test on Mobile Use Educational Purposes.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Std. Error	Sig.
No times (Frequency in week)	Sports Group	Music group	0.935	0.407	0.060
		Control Group	0.520	0.428	0.447
	Music group	Sports Group	-0.935	0.407	0.060
		Control Group	-0.414	0.439	0.614
	Control Group	Sports Group	-0.520	0.428	0.447
		Music group	0.414	0.439	0.614
Mobile use Education Minutes	Sports Group	Music group	5.919	6.391	0.625
		Control Group	1.848	6.720	0.959
	Music group	Sports Group	-5.919	6.391	0.625
		Control Group	-4.071	6.889	0.825
	Control Group	Sports Group	-1.848	6.720	0.959
		Music group	4.071	6.889	0.825
Mobile use Education (Since how long) Months	Sports Group	Music group	6.289	2.972	0.091
		Control Group	6.517	3.125	0.097
	Music group	Sports Group	-6.289	2.972	0.091
		Control Group	0.229	3.204	0.997
	Control Group	Sports Group	-6.517	3.125	0.097
		Music group	-0.229	3.204	0.997

Table 21. One-Way ANOVA on Mobile Use for Social Purpose.

		Mean	Std. Deviation	F	Sig.
No times (Frequency in week)	Sports Group	2.79	3.127	2.468	0.89
	Music Group	1.40	2.604		
	Control Group	1.94	3.134		
	Total	2.08	2.998		
Mobile Use Social Minutes	Sports Group	30.47	59.868	0.435	0.648
	Music Group	23.57	41.530		
	Control Group	36.86	83.235		
	Total	29.94	62.113		
Mobile Social (Since how long) Months	Sports Group	9.28	16.880	0.748	0.485
	Music Group	8.05	18.045		
	Control Group	5.14	8.869		
	Total	7.69	15.482		

Table 22. Multiple Comparisons Post HOC Tukey Test on Mobile use for Social Purposes.

Dependent Variable	(I) ECA	(J) ECA	Mean Difference (I-J)	Sig.
No times (Frequency in week)	Sports Group	Music Group	1.382	0.076
		Control Group	0.844	0.411
	Music Group	Sports Group	-1.382	0.076
		Control Group	-0.538	0.708
	Control Group	Sports Group	-0.844	0.411
		Music Group	0.538	0.708
Mobile Use Social Minutes	Sports Group	Music Group	6.897	0.861
		Control Group	-6.389	0.891
	Music Group	Sports Group	-6.897	0.861
		Control Group	-13.286	0.622
	Control Group	Sports Group	6.389	0.891
		Music Group	13.286	0.622
Mobile Use Social (Since how long) Months	Sports Group	Music Group	1.229	0.926
		Control Group	4.134	0.459
	Music Group	Sports Group	-1.229	0.926
		Control Group	2.905	0.693
	Control Group	Sports Group	-4.134	0.459
		Music Group	-2.905	0.693

Table 23. One-Way ANOVA on Television Use.

		Mean	Std. Deviation	F	Sig.
TV No times (Frequency in week)	Sports Group	4.79	2.702	10.775	0.000
	Music Group	5.98	1.828		
	Control Group	6.86	0.845		
	Total	5.77	2.182		
TV Minutes	Sports Group	49.36	34.436	0.012	0.988
	Music Group	50.21	32.685		
	Control Group	49.26	18.376		
	Total	49.62	29.885		
TV (Since how long) Months	Sports Group	100.94	120.170	4.989	0.008
	Music Group	97.50	100.882		
	Control Group	167.54	99.957		
	Total	118.57	111.838		

Table 24: Multiple Comparisons Post HOC Tukey Test on Television.

Dependent Variable	(I) Extracurricular activity groups	(J) Extracurricular activity groups	Mean Difference (I-J)	Sig.
TV No Times Frequency	Sports Group	Music Group	-1.189 [*]	0.018
		Control Group	-2.070 [*]	0.000
	Music Group	Sports Group	1.189 [*]	0.018
		Control Group	-0.881	0.143
	Control Group	Sports Group	2.070 [*]	0.000
		Music Group	0.881	0.143
Minutes	Sports Group	Music Group	-0.853	0.990
		Control Group	0.105	1.000
	Music Group	Sports Group	0.853	0.990
		Control Group	0.957	0.989
	Control Group	Sports Group	-0.105	1.000
		Music Group	-0.957	0.989
(Since how long) Months	Sports Group	Music Group	3.436	0.988
		Control Group	-66.607 [*]	0.019
	Music Group	Sports Group	-3.436	0.988
		Control Group	-70.043 [*]	0.015
	Control Group	Sports Group	66.607 [*]	0.019
		Music Group	70.043 [*]	0.015

In the current study, it was found that adolescents involved in music-related activities and adolescents involved in sports activities spent less time watching TV, playing videogames, and using mobile devices than the control group (**Tables 22 and 23**).

Adolescents involved in structured extracurricular activities associated with sports and music have greater self-esteem, self-concept, and psychological wellbeing in comparison with adolescents not involved in any structured extracurricular activities (Pol & Roopesh, 2016). Participation in extracurricular activities also leads to better academic achievement (Camp, 1990; Craft, 2012; Darling et al., 2005; Moriana, 2006), and excessive use of media negatively affects academics (Anderson, 2001). Current study find-

ings suggest that academic grades were found to be lower in teens, especially those who are not engaged in any organized extracurricular activity, than in structured extracurricular activity groups (**Table 1**).

Apart from academics, motivation and enthusiasm behind extracurricular activities play an essential role and are associated with successful skill development (Acar & Gunduz, 2017). The current findings suggest that subjective ratings for liking and achievements for music-related activities and sports-related activities were higher than those of adolescents not engaged in any extracurricular activity (**Table 3**).

Nonetheless, there are certain advantages associated with mobile, including the use of computers and the internet, which can be utilized for educational purposes (Nah et al., 2008; Papastergiou, 2009; Rutten et al., 2012; Sarrab, 2013).

The present study elucidates that internet use at school for educational purposes was higher in the sports and music groups than in the control group (**Table 11**). But internet use for recreational and social purposes was greater in the control group than in the sports and music groups (**Table 9**). The mobile use, computer use, and internet use at home for educational purposes scores were higher for the sports group and control group than for the music group (**Tables 11, 15, 17, and 19**).

It is found that teenagers are spending less time watching movies on TV and reading books instead of preferring to spend time on digital media (Twenge et al., 2018). But the current study states that adolescents from all three groups spend their time watching TV the most, in comparison with playing videogames and using mobile computers for both social and educational purposes (**Table 24**).

There were a few common habitual patterns observed in the sample. For all three sports groups, the music group, and the control group, the use of the internet for educational purposes was greater at home than at school; perhaps this could be due to fixed class hours. In addition, some contradictory findings were observed in all three sports groups, the music group, and the control group with reference to spending time on mobile. Using mobile socially for recreational activities was found to be higher in all groups than spending time on mobile for constructive educational activities. The results altogether suggest that technology is not being used constructively by youth; however, participation in structured extracurricular activities can help adolescents use their time wisely.

Research suggests that parental rules regarding the content of internet use may assist in avoiding compulsive use of the internet (van Den Eijnden et al., 2010). Supervision by parents plays an important role in the usage of the internet and motivating children to engage in extracurricular activities, as it can prevent internet addiction (Lin et al., 2009).

The study has direct implications for schools and mental health programs. It gives us a better understanding of adolescents' development and outcomes regarding their sociability, interpersonal relations, emotional problems, academics, and technology use.

Conclusively, it was seen that technology use for recreational purposes was found to be greater in adolescents not involved in structured extracurricular activities than in those involved in music and sports-related structured extracurricular activities. Hence, enrolling adolescents in structured extracurricular activities is beneficial for their holistic development and can prevent them from excessive technology use.

References

- Acar, Z., & Gündüz, N. (2017). Participation motivation for extracurricular activities: Study on primary school students. *Universal Journal of Educational Research*, 5(5):901-910. DOI: <https://doi.org/10.13189/ujer.2017.050533>
- Alimoradi, Z., Lin, C. Y., Broström, A., Bülöw, P. H., Bajalan, Z., Griffiths, M. D., Ohayon, M. M., & Pakpour, A. H. (2019). Internet addiction and sleep problems: A systematic review and meta-analysis. *Sleep Medicine Reviews*, 47:51-61. DOI: <https://doi.org/10.1016/j.smrv.2019.06.004>
- Anderson, D. R., Huston, A. C., Schmitt, K. L., Linebarger, D. L., & Wright, J. C. (2001). Early childhood television viewing and adolescent behavior: The recontact study. *Monographs of the Society for Research in Child Development*, 66(1). In press. DOI: <https://doi.org/10.1111/1540-5834.00120>
- Balhara, Y. P. S., Mahapatra, A., Sharma, P., & Bhargava, R. (2018). Problematic internet use among students in South-East Asia: Current state of evidence. *Indian Journal of Public Health*, 62(3):197. DOI: https://doi.org/10.4103/ijph.IJPH_288_17
- Balyer, A., & Gunduz, Y. (2012). Effects of structured extracurricular facilities on students' academic and social development. *Procedia-Social and Behavioral Sciences*, 46:4803-4807. DOI: <https://doi.org/10.1016/j.sbspro.2012.06.338>
- Basri, S., Hawaldar, I. T., Nayak, R., & Rahiman, H. U. (2022). Do academic stress, burnout and problematic internet use affect perceived learning? Evidence from India during the COVID-19 pandemic. *Sustainability*, 14(3):1409. DOI: <https://doi.org/10.3390/su14031409>
- Beal, S. J., & Crockett, L. J. (2010). Adolescents' occupational and educational aspirations and expectations: Links to high school activities and adult educational attainment. *Developmental Psychology*, 46(1): 258-265. DOI: <https://doi.org/10.1111/j.1749-6632.2009.04509.x>
- Bener, A., Yildirim, E., Torun, P., Çatan, F., Bolat, E., Alıç, S., Akyel, S., & Griffiths, M. D. (2019). Internet addiction, fatigue, and sleep problems among adolescent students: A large-scale study. *International Journal of Mental Health and Addiction*, 17:959-969. DOI: <https://doi.org/10.1007/s11469-018-9937-1>
- Boer, D., Abubakar, A., (2014). Music listening in families and peer groups: Benefits for young people's social cohesion and emotional well-being across four cultures. *Frontiers in Psychology*, 5:392. DOI: <https://doi.org/10.3389/fpsyg.2014.00392>
- Busseri, M. A., Rose-Krasnor, L., Willoughby, T., & Chalmers, H. (2006). A longitudinal

- examination of breadth and intensity of youth activity involvement and successful development. *Developmental Psychology*, 42(6):1313. DOI: <https://doi.org/10.1037/0012-1649.42.6.1313>
- Cash, H., D Rae, C., H Steel, A., & Winkler, A. (2012). Internet addiction: A brief summary of research and practice. *Current Psychiatry Reviews*, 8(4):292-298. DOI: <https://doi.org/10.2174/157340012803520513>
- Cosden, M., Morrison, G., Gutierrez, L., & Brown, M. (2004). The effects of homework programs and after-school activities on school success. *Theory into Practice*, 43(3):220-226. DOI: https://doi.org/10.1207/s15430421tip4303_8
- Cummings, H.M., & Vandewater, E.A. (2007). Relation of adolescent videogame play to time spent in other activities. *Archives of Pediatrics and Adolescent Medicine*, 161(7):684-689. DOI: <https://doi.org/10.1001/archpedi.161.7.684>
- Darling, N., Caldwell, L. L., & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research*, 37(1):51-76. DOI: <https://doi.org/10.1080/00222216.2005.11950040>
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology*, 45:294-309. DOI: <https://doi.org/10.1007/s10464-010-9300-6>
- Fraser-Thomas, J. L., Côté J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education & Sport Pedagogy*, 10(1):19-40. DOI: <https://doi.org/10.1080/1740898042000334890>
- Fredricks, J. A., & Eccles, J. S. (2006). Extracurricular involvement and adolescent adjustment: Impact of duration, number of activities, and breadth of participation. *Applied Developmental Science*, 10(3):132-146. DOI: https://doi.org/10.1207/s1532480xads1003_3
- Gardner, M., Roth, J., & Brooks-Gunn, J. (2008). Adolescents' participation in organized activities and developmental success 2 and 8 years after high school: Do sponsorship, duration, and intensity matter? *Developmental Psychology*, 44(3):814. DOI: <https://doi.org/10.1037/0012-1649.44.3.814>
- Gilman, R., Meyers, J., & Perez, L. (2004). Structured extracurricular activities among adolescents: Findings and implications for school psychologists. *Psychology in the Schools*, 41(1):31-41. DOI: https://doi.org/10.1207/s1532480xads1003_3
- Hale, L., & Guan, S. (2015). Screen time and sleep among school-aged children and adolescents: A systematic literature review. *Sleep Medicine Reviews*, 21:50-58. DOI: <https://doi.org/10.1016/j.smrv.2014.07.007>
- Knifsend, C. A., & Juvonen, J. (2017). Extracurricular activities in multiethnic middle schools: Ideal context for positive intergroup attitudes? *Journal of Research on Adolescence*, 27:407-422. DOI: <https://doi.org/10.1111/jora.12278>
- Larson, R. W., Hansen, D. M., & Moneta, G. (2006). Differing profiles of developmental experiences across types of organized youth activities. *Developmental Psychology*, 42(5):849. DOI: <https://doi.org/10.1037/0012-1649.42.5.849>
- Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2016). The association between social media use and sleep disturbance among young adults. *Preventive Medicine*, 85:36-41. DOI: <https://doi.org/10.1016/j.ypmed.2016.01.011>
- Lin, C. H., Lin, S. L., & Wu, C. P. (2009). The effects of parental monitoring and leisure boredom on adolescents' internet addiction. *Adolescence*, 44(176):993-1004.
- MacPhail, A., Gorely, T., Kirk, D., & Kinchin, G. (2008). Children's experiences of fun and enjoyment during a season of sport education. *Research Quarterly for Exercise and Sport*, 79(3):344-355. DOI: <https://doi.org/10.1080/02701367.2008.10599498>
- Mahoney, J. L., Sattin, H., (2000). Leisure activities and adolescent antisocial behaviour: The role of structure and social context. *Journal of Adolescence*, 23:113-127. Doi: <https://doi.org/10.1006/jado.2000.0302>

- Mahoney, J. L., Stattin, H., & Lord, H. (2004). Unstructured youth recreation centre participation and antisocial behaviour development: Selection influences and the moderating role of antisocial peers. *International Journal of Behavioral Development*, 28(6):553-560. DOI: <https://doi.org/10.1080/01650250444000270>
- Mohan, A., & Thomas, E. (2020). Effect of background music and the cultural preference to music on adolescents' task performance. *International Journal of Adolescence and Youth*, 25(1):562-573. DOI: <https://doi.org/10.1080/02673843.2019.1689368>
- Moriana, J. A., Alos, F., Alcalá, R., Pino, M. J., Herruzo, J., & Ruiz, R. (2006). Extracurricular activities and academic performance in secondary students. *Electronic Journal of Research in Educational Psychology*, 4(1):35-46.
- Nah, K. C., White, P., & Sussex, R. (2008). The potential of using a mobile phone to access the Internet for learning EFL listening skills within a Korean context. *RECALL*, 20(3):331-347. DOI: <https://doi.org/10.1017/S0958344008000633>
- Nakayama, H., Matsuzaki, T., Mihara, S., Kitayuguchi, T., & Higuchi, S. (2021). Change of Internet use and bedtime among junior high school students after long-term school closure due to the coronavirus disease 2019 pandemic. *Children*, 8(6):480. DOI: <https://doi.org/10.3390/children8060480>
- Neverkovich, S. D., Bubnova, I. S., Kosarenko, N. N., Sakhieva, R. G., Sizova, Z. M., Zakharova, V. L., & Sergeeva, M. G. (2018). Students' internet addiction: Study and prevention. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(4):1483-1495. DOI: <https://doi.org/10.29333/ejmste/83723>
- North, A. C., Hargreaves, D. J., & O'Neill, S. A. (2000). The importance of music to adolescents. *British Journal of Educational Psychology*, 70(2):255-272. DOI: <https://doi.org/10.1348/000709900158083>
- Oberle, E., Ji, X. R., Kerai, S., Guhn, M., Schonert-Reichl, K. A., & Gadermann, A. M. (2020). Screen time and extracurricular activities as risk and protective factors for mental health in adolescence: A population-level study. *Preventive Medicine*, 141:106291. DOI: <https://doi.org/10.1016/j.ypmed.2020.106291>
- Papastergiou, M. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & Education*, 52(1):1-12. DOI: <https://doi.org/10.1016/j.compedu.2008.06.004>
- Pol, S., & Roopesh, B. N. (2016). Extracurricular activities, self-esteem, self-concept and psychological well-being in adolescents. Unpublished M.Phil. in Clinical Psychology dissertation submitted to National Institute of Mental Health and Neuro Sciences, Bengaluru.
- Punamäki, R. L., Wallenius, M., Nygård, C. H., Saarni, L., & Rimpelä A. (2007). Use of information and communication technology (ICT) and perceived health in adolescence: the role of sleeping habits and waking-time tiredness. *Journal of Adolescence*, 30(4):569-585. DOI: <https://doi.org/10.1016/j.adolescence.2006.07.004>
- Rosen, L. D., Lim, A. F., Felt, J., Carrier, L. M., Cheever, N. A., Lara-Ruiz, J. M., Mendoza, J. S., & Rökkum, J. (2014). Media and technology use predicts ill-being among children, preteens and teenagers independent of the negative health impacts of exercise and eating habits. *Computers in Human Behavior*, 35:364-375. DOI: <https://doi.org/10.1016/j.chb.2014.01.036>
- Rutten, N., Van Joolingen, W. R., & Van Der Veen, J. T. (2012). The learning effects of computer simulations in science education. *Computers & Education*, 58(1):136-153. DOI: DOI: <https://doi.org/10.1016/j.compedu.2011.07.017>
- Saikia, A. M., Das, J., Barman, P., & Bharali, M. D. (2019). Internet addiction and its relationships with depression, anxiety, and stress in urban adolescents of Kamrup District, Assam. *Journal of Family & Community Medicine*, 26(2):108-112. DOI: https://doi.org/10.4103/jfcm.JFCM_93_18
- Sampasa-Kanyinga, H., Chaput, J. P., & Hamilton, H. A. (2019). Social media use, school connectedness, and academic performance among adolescents. *The Journal of Primary Prevention*, 40:189-211. DOI: <https://doi.org/10.1007/s10935-019-00543-6>

- Sarrab, M., Al-Shih, H., & Rehman, O. M. H. (2013). Exploring major challenges and benefits of m-learning adoption. *British Journal of Applied Science & Technology*, 3(4):826.
- Schaefer, D. R., Simpkins, S. D., Vest, A. E., Price, C. D., (2011). The contribution of extracurricular activities to adolescent friendship: New insights through social network analysis. *Developmental Psychology*, 47:1141-1152. DOI: <https://doi.org/10.1037/a0024091>
- Sharma, M. K., Rao, G. N., Benegal, V., Thennarasu, K., & Thomas, D. (2017). Technology addiction survey: An emerging concern for raising awareness and promotion of healthy use of technology. *Indian Journal of Psychological Medicine*, 39(4):495-499. DOI: https://doi.org/10.4103/IJPSYM.IJPSYM_171_17
- Shek, D. T., Zhu, X., & Dou, D. (2019). Influence of family processes on internet addiction among late adolescents in Hong Kong. *Frontiers in Psychiatry*, 10:113. DOI: <https://doi.org/10.3389/fpsy.2019.00113>
- Shen, Y., Meng, F., Xu, H., Li, X., Zhang, Y., Huang, C., Luo, X., & Zhang, X. Y. (2020). Internet addiction among college students in a Chinese population: Prevalence, correlates, and its relationship with suicide attempts. *Depression and Anxiety*, 37(8):812-821. DOI: <https://doi.org/10.1002/da.23036>
- Sivagurunathan, C., Umadevi, R., Rama, R., & Gopalakrishnan, S. (2015). Adolescent health: present status and its related programmes in India. Are we in the right direction? *Journal of Clinical and Diagnostic Research*, 9(3):LE01-LE6. DOI: https://doi.org/10.7860/JCDR/2015/11199_5649
- Stanković, M., Nešić, M., Čičević, S., & Shi, Z. (2021). Association of smartphone use with depression, anxiety, stress, sleep quality, and internet addiction. Empirical evidence from a smartphone application. *Personality and Individual Differences*, 168:110342. DOI: <https://doi.org/10.1016/j.paid.2020.110342>
- Thompson, L. J., Clark, G., Walker, M., & Whyatt, J. D. (2013). 'It's just like an extra string to your bow': Exploring higher education students' perceptions and experiences of extracurricular activity and employability. *Active Learning in Higher Education*, 14(2):135-147. DOI: <https://doi.org/10.1177/1469787413481129>
- Tripathi, A. (2017). Impact of internet addiction on mental health: An integrative therapy is needed. *Integrative Medicine International*, 4(3-4):215-222. DOI: <https://doi.org/10.1159/000491997>
- Tsitsika, A., Critselis, E., Louizou, A., Janikian, M., Freskou, A., Marangou, E., Kormas, G., & Kafetzis, D. A. (2011). Determinants of Internet addiction among adolescents: A case-control study. *TheScientificWorldJournal*, 11:866-874. DOI: <https://doi.org/10.1100/tsw.2011.85>
- Turkson, D., Britwum, F., & Yeboah, A. (2021). The influence of structured and unstructured after-school activities on academic performance of junior high school students in Cape Coast Metropolis in the Central Region of Ghana. *Creative Education*, 12(2):356. DOI: <https://doi.org/10.4236/ce.2021.122025>
- Twenge, J. M. (2019). More time on technology, less happiness? Associations between digital-media use and psychological well-being. *Current Directions in Psychological Science*, 28(4):372-379. DOI: <https://doi.org/10.1177/0963721419838244>
- Unicef. (2011). UNICEF annual report 2010. Unicef. Available at: <https://www.unicef.org/reports/annual-report-2010>
- Vaala, S. E., & Bleakley, A. (2015). Monitoring, mediating, and modeling: Parental influence on adolescent computer and Internet use in the United States. *Journal of Children and Media*, 9(1):40-57. DOI: <https://doi.org/10.1080/17482798.2015.997103>
- van Den Eijnden, R. J., Spijkerman, R., Vermulst, A. A., van Rooij, T. J., & Engels, R. C. (2010). Compulsive Internet use among adolescents: Bidirectional parent-child relationships. *Journal of Abnormal Child Psychology*, 38:77-89. DOI: <https://doi.org/10.1007/s10802-009-9347-8>
- Vandell, D. L., Simpkins, S. D., Pierce, K. M., Brown, B. B., Bolt, D., & Reiser, E. (2022). After school programs, extracurricular activities, and unsupervised time: Are patterns of participation linked to children's academic and social well-being? *Applied Developmental Science*,

- 26(3):426-442. DOI:
<https://doi.org/10.1080/10888691.2020.1843460>
- Venkataraghavan, M. (2015). A study on the usage of mobile phones for cyber bullying among tweens & teens of Chennai, India. *Online Journal of Communication and Media Technologies*, 5:19-30. DOI:
<https://doi.org/10.30935/ojcm/5671>
- Whiting, V. R., & de Janasz, S. C. (2004). Mentoring in the 21st century: Using the internet to build skills and networks. *Journal of Management Education*, 28(3):275-293. DOI:
<https://doi.org/10.1177/1052562903252639>
- Yamasato, A., Kondo, M., Hoshino, S., Kikuchi, J., Ikeuchi, M., Yamazaki, K., Okino, S., & Yamamoto, K. (2020). How prescribed music and preferred music influence sleep quality in university students. *Tokai Journal of Experimental and Clinical Medicine*, 45(4):207-213.
- Zaccoletti, S., Camacho, A., Correia, N., Aguiar, C., Mason, L., Alves, R. A., & Daniel, J. R. (2020). Parents' perceptions of student academic motivation during the COVID-19 lockdown: A cross-country comparison. *Frontiers in Psychology*, 11:592670. DOI:
<https://doi.org/10.3389/fpsyg.2020.592670>

Received: 12 April 2023

Revised: 19 April 2023

Accepted: 29 May 2023